REMARKS

By this Amendment, claims 21 and 28 have been amended. Claims 7-10 and 12-28 are pending. Reconsideration in view of the above amendments and the following remarks are respectfully requested.

In the Office Action, claims 21 and 28 were rejected under 35 U.S.C. §112, second paragraph. In particular, the Examiner's understanding is correct in that the suction tube is welded to the throttling tube at a second soldering joint. Accordingly, claims 21 and 28 are amended so as to change the "first and second portions" to the --throttling tube-- consistent with the Examiner's interpretation. As this amendment is clarifying in nature, its entry is respectfully requested, especially since this interpretation is consistent with the Examiner's interpretation given in the Office Action.

In the Final Rejection, claims 7-10, 12-14, 19, 20, 22, 26 and 27 were rejected under 35 U.S.C. §103(a) over FR 1516944 in view of Dobson et al. (U.S. Patent Publication No. 200/2/0184911 A1). Furthermore, claims 14, 15, 22 and 23 were rejected under 35 U.S.C. §103(a) over FR '944 in view of Dobson et al. as well as Gelbard et al. (U.S. Patent No. 4,147,037). Further, claims 16-18, 24 and 25 were rejected under FR '944 in view of Dobson et al., and further in view of Bitter et al. (U.S. Patent No. 5,269,158). Finally, claims 21 and 28 were rejected under 35 U.S.C. §103(a) over FR '944 in view of Dobson et al., and further in view of Nocivelli (EP 0788860 A1) and Bitter et al. The Final Rejection includes the errors that follow:

Error #1 There is no motivation to combine the teachings of FR '944 and Dobson et al.

Claim 7 is directed to a refrigerating unit comprising a suction tube and a throttling tube which runs at least over a part of its length inside the suction tube and is guided out from the suction tube to form a first outlet location, wherein the throttling tube and the suction tube are joined to one another at a second location of the suction tube at which outer surfaces of the throttling tube and the suction tube are in contact, wherein the outer surfaces of the throttling tube and the suction tube are joined to one another at the second location by ultrasound welding.

The claimed structure is advantageous in that the heat required for ultrasonic welding is released at a short time and exclusively localized on the surfaces of the two tubes in contact with another. Other regions of the tubes are at most heated by heat flow from the region of contact. They thus remain substantially cooler than is possible by soldering, for example. Consequently, the structure of the material forming the suction tube and throttling tube, this usually being copper or a copper alloy, does not change decisefully. In addition, the mechanical strength properties of the material are thus not modified. In addition, this is a very cost-effective joining technique. Further, ultrasonic welding can be implemented in an automated fashion. See paragraph 8 of the original specification.

As acknowledged in the Office Action, FR '944 does not explicitly teach or suggest that the weld shown in reported section location 45 of the device depicted in Figure 11 as an ultrasonic weld as required as set forth in independent claim 7. In an effort to remedy this deficiency, the Office Action has cited to Dobson et al. as teaching the use of an ultrasonic welding at paragraph [0048] of Dobson et al.

However, Dobson et al. is directed toward an integrated U-tube and absorbent unit, e.g., for an automotive air conditioning system per paragraph [0003] of Dobson et al. Moreover, Dobson et al. is directed toward providing an integrated U-tube and absorbent unit wherein the absorbent unit is an integral and inseparable part of the U-tube. See paragraphs [0005] through [0016] of the Summary section of Dobson et al.

As FR '944 is directed toward compressors specifically adapted for use for domestic refrigerators, and because FR '944 is specifically directed toward a one piece U-tube-absorbent

unit for an automobile air conditioning system, there appears to be no reason why one of ordinary skill in the art would have adopted the teachings of Dobson et al. which again is directed to an integrated U-tube and absorbent unit, not related to the present technology.

Reconsideration and withdrawal of the rejection are respectfully requested.

Error #2 Dobson et al. includes no suggestion to use ultrasonic welding to join outer surfaces of the throttling tube and the suction tube (claims 1 and 12).

Even if there is motivation to combine the teachings of FR '944 and Dobson et al., Dobson et al. does not teach the use of ultrasonic welding for joining the outer surfaces of the throttling tube and a suction tube as set forth in claim 7. Rather, the Examiner has relied on Figures 7-11 of Dobson et al. to reject the claims. However, this embodiment is directed toward the ultrasonic welding of two plastic pieces that make up a single U-shaped conduit. In particular, each of the plastic pieces form a half circle, such that when both half circles are joined to one another, they form a full circle and the inner passage of the conduit. Accordingly, Dobson et al. does not teach or suggest the ultrasonic welding of two tubes, i.e., a suction tube and a throttling tube to one another, as set forth in claims 1 and 12. In addition, Dobson et al.'s halves 51 and 52 making up the U-tube 50 are injection molded and therefore have no application to the pipes of tubes which are involved in FR '944, in which the suction tube and the throttling tube are usually made of metal materials.

In response to this rejection, the Examiner points out that Dobson et al., in paragraph [0052], discloses a possibility that the U-tube may be made of metal. However, Dobson et al. does not teach the technique of using ultrasonic welding of metal. In particular, paragraph [0052] indicates that a metal U-tube can also be used if the covers, such as covers 40 and 40' are suitably bonded thereto, as by gluing or by any other suitable means. Specifically not mentioned in paragraph [0052] is the use of ultrasonic welding. By contrast, paragraph [0044] specifically indicates that covers 40 and 40' are preferably web-bonded polyester felt and are preferably heat fused along the outer edges to ridges 27 and 27', respectively, or they may be bonded to the ridges 27 and 27' by ultrasonic welding or vibration welding or any other suitable bonding means which may include, without limitation, any other type of fusion or the use of bonding cement or any other suitable means of attachment. In other words, paragraph [0044] is

specifically limited to the situation where the U-tube is made of plastic, and as such, ultrasonic welding is specifically mentioned. Paragraph [0052] clearly does not indicate that the U-tube is made of two metal pieces, and paragraph [0052] specifically does not mention that, assuming that the tube is made of two metal pieces, they are bonded to each other using ultrasonic welding. In addition, covers 40 and 40' are not said to be ultrasonically welded to such metal tube. Moreover, even if the metal tube is ultrasonically welded, which it clearly is not disclosed as such, Dobson et al. still fails to teach or suggest the ultrasonic welding of a suction tube and a throttling tube, in particular, the ultrasonic welding of outer surfaces of the throttling tube and the suction tube. There is simply no reason or motivation why one of ordinary skill in the art would have taken Dobson et al.'s very specific disclosure of ultrasonically welding two plastic pipe halves to one another or covers 40, 40' thereto, for application of ultrasonic welding of outer surfaces of a throttling tube and a supply tube.

Error #3 FR '944 and Dobson et al. do not teach the use of both a solder joint and an ultrasonic joint (claims 12 and 16).

Independent claim 12 is a method for joining a suction tube of a refrigerating unit to a throttling tube. It includes joining the suction tube and the throttling tube at the outlet location by soldering and joining the outer surfaces of the suction tube and the throttling tube to one another at a second location by ultrasound welding. Similarly, independent claim 7 specifies that the suction tube and the throttling tube are joined to one another at a section location by ultrasonic welding. In addition, claim 16, dependent on claim 7, specifies that the suction tube and the throttling tube are fixed at the first outlet location by a soldering joint.

Neither FR '944 nor Dobson et al. has any suggestion to use two different types of weldings or joints to fasten the throttling tube to the suction tube, as effectively recited in claim 12, and claims 7 and 16 when considered together. In other words, FR '944 apparently teaches the uses of braised induction to join the throttling and supply tubes, whereas Dobson et al. uses ultrasonic welding to join its pipe halves and/or the covers to the pipe halves. There is no teaching or disclosure of using two different joining techniques at two different locations as specified in claims 12 and 16. Thus, Dobson et al., if adopted in FR '944, would suggest to use ultrasonic welding at both locations, not just one location. There is no teaching or suggestion to

pick and choose Dobson et al.'s ultrasonic welding technique for one of the locations, but to maintain the braising technique of FR '944 for the other location. Such amounts to impermissible hindsight. Moreover, one of ordinary skill in the art could have predictably incorporated both the braising technique as well as the ultrasonic technique for joining the same two pipes at two different locations. Dependent claims 17-28 include additional features relevant to the claimed throttling arrangement which make it even more apparent that Dobson et al.'s teachings have no relevance to FR '944.

Error #4 The Examiner has not established that the parameters of claims 8, 13, 19 and 26 are a result of effective variables.

Claim 8 specifies that the second location is about 5-20mm from the first location. Claim 13 specifies that the second location is about 5-10mm from the first location. Similarly, claim 19 specifies that the diameter of the suction tube is a few millimeters in the diameter of the throttling tube is in the range of fractions of a millimeter. In the Office Action, pages 4, 7 and 8, the Examiner admits that none of the prior art teaches or suggests these parameters. However, the Examiner without justification, simply takes the distance that the claimed parameters are recognized as being result effective variables per MPEP 2144.05. The Examiner has not established that the distance between the soldering joints or the relative diameters of the supply and throttling tubes were known to be result effective variables. Thus, it is not obvious to optimize them. The fact that FR '944 teaches an unspecified distance between the two joints does not establish that the distance between the joints is a result effective variable. Moreover, especially for claim 12, which specifies both a soldering joint and an ultrasonic joint, the prior art clearly does not establish that the distance between these two different types of joints is a result effective variable.

CONCLUSION

Applicant respectfully requests entry of the present Amendment. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is enclosed.

Respectfully submitted,

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